

MACHINE TRANSLATION OF EP 0 408 428

The invention has for object a felt to bases wool minérale, notably of wool of glass, intended for the thermal insulation and wall acoustics, by the exterior one, behind retrieved bardages.

The exterior insulation of the walls often is obtained by means of panels or rolls that one comes to stick or set up automatically on the wall masonry or in concrete or again to tie or skewer on the ossature of a bardage, the panels or rolls next being masked by a retrieved bardage, placed in preference to a certain distance of the insulating one in a manner to assure a good airiness that avoids Vapor of water and the damages that this condensation could induce.

This procedure is very advantageous notably because of the variety of the types of possible bardage (veneer in fibers cement, slate-gray, tiles, bricks of parement, wood shingles, metallic winks or PVC, etc. ...) and possibility to operate on buildings new or old.

For this usage, the insulating products to bases wool minérale are all particularly advantageous one because of their lightness, of their good mechanical resistance and especially quality of the thermal insulation and due acoustics notably to their elasticity and to their porosity. These products typically are done fibers minérales maintained in cohesion by an organic resin (resin phénol-formaldéhyde of the type résol modified or not to the urée for example). The resin is pulverized in the form of an aqueous emulsion at the time of the reception of the fibers and the rug of pasted fibers next is driven in a steam where produces itself the resin polymerization, the thus realized felt presenting for this application range an understood density for example between 10 and 40 kg/m³ And being conditioned in the form of a panels or of rolls.

The exterior insulation of course is confronted to the problem of the intempéries at the time of the bear on work-sites, the final bardage assuring the external protection not generally having brought up that once the completely finished insulation. To obviate this problem, it is known to clothe the felt of a sail of glass that improves the mechanical resistance and protects the insulating one in case of intempéries. Nevertheless this protection is only momentary (to the more some weeks) and is not therefore satisfactory that if the works on the work-site carry out themselves to a normal rhythm.

But in practice, many work-sites are left in the state during long strong periods, frequently of 3 to 6 months, for reasons of technical order or sometimes simply because of a supplying rupture in plate material. The felt thus disposed on the facades remains therefore to the free air for a very long period and sees his exterior surface subject to various aggressions such as solar radiance, extremist-violets in particular, rain, the wind, dust, the thermal shocks of all natures. One observes then quickly a progressive deterioration of the superficial structure of

the felt: bleaching or all at least change of color, tearing of the exposed surface to the air, indeed digging out of scraps of fibers.

Outside of the aspect inesthétique given to the construction body, often unacceptable in himself, this deterioration of the superficial structure drives equally to an important degradation of the organic lion that is weakens by ultraviolet and literally washed out radiance in surface by the rainwater streaming. When finally the works are resumed, after the some months of interruption, the felt appears simply layered in surface but if one withdraws the external protection at the end of some years one can note that the fibers or at least a party of them fell for lack of lion and accumulated themselves in the low party of the building.

It was proposed to paint the insulating panels with a recalcitrant paint to the projected latex on the exterior surface of the panels. Nevertheless, this technique is not satisfactory with the products more light that act as sponges and that necessitate owing to the very important quantities of paint if one wants a resistance to the vapor of satisfactory water. The Finnish patent 70 286 proposes to obviate the latter problem by means of a sail in glass fibers inserted between the insulating layer and the paint layer, this sail reducing the possibility of impregnation of the layer insulating by the paint latex.

In practice, the authors of the presents invention noted that the paints latex present a resistance to the inferior extremist-violets to the one desirable if the insulating product must undergo an extended exposition. On the other hand, sail, especially if it is reinforced and épaissi by a layer of paint, drives to an effect of "matelas" when the panel is set up by embrochage on mechanical fixings including a stop in the form of a washers or rosaces. This phenomenon of matelassage night lightly to the quality of the insulation and present of more the inconvenience to be judged inesthétique by most of the masters of work.

The invention has for goal an insulating product to bases wool minérale consolidated by an organic resin intend for the insulation by the exterior one of buildings and capable of bear an extended exposition to the intempéries.

In accordance with the claim 1, this goal is attained by a thermal insulating product and acoustics constituted by a felt does fibers minérales consolidated by an organic directly clothed lion to his exterior surface of a porous coating vinylique, stable with respect to the rays extremist-violets, stems to streaming waters.

Preferably, the coating is constituted by a paint of the type acetate of polyvinyle, deposited on the surface to reason of 50 to 70 g/m² After drying. The paint, preferably fireproofed, can be colored, for example according to the complexion of the organic lion. The very weak thickness of the layer of paint suffices manner

surprising to confer the protection to the required intempéries and does not drive to a modification of the aspect of the panel after his pose.

The product according to the invention favorably can be obtained while pulverizing to the surface of a band of a felt in fibers minérales secured by a resin polymérisée an aqueous or organic dispersion generator of the porous coating vinylique and polymérisant by drying to a temperature on the order of 150 DEG C about, by running hot air or by means of radiance infra-rouge.

Of other details and advantageous characteristic invention are given hereafter in reference to the annexed drawings that represent: . Figure 1: a cross sectional view of a product according to the invention,, figure 2: an outline of implement material.

The presents invention has more particularly for object a thermal insulating material and phonic in felts fibers minérales 1, intended for the insulation by the exterior one facades, behaving to his exposed surface to the intempéries a porous coating to bases matter polymérisée stable with respect to the rays extremist-violets, stems to the waters of streaming and perméable to the gasses and to the vapors.

The aforementioned coating 3 in fact is applied on the felt in quantity such as it remains porous, respecant in that structures it even felt of fibers minérales. This porosity is necessary for, for that it fully plays his role, the insulating material must be able to leave the air and the vapors through his mass, principally when it is not protected by an external plate. While remaining to the dry state, it sees his insulation thermal increased strength.

For that it plays efficiently his role of mechanical protection (resistance to the pressure of the wind or rain, resistance to the fiber wrench), the coating 3 must present a sufficiently solid structure, structures that one realizes well using matters polymérisées adequate. By way of matters polymérisées, one uses according to the invention of the polymères or copolymères vinyliques of the type acetate of polyvinyle, chloride of polyvinyle. To assure in addition the material pérénité, the aforementioned coating 3 must be stable with respect to the rays extremist-violets that, to term and in big quantity, provoke the "cracking" chains of polymères, phenomenon of which besides one tries to preserve the used resin for the fiber encollage that itself dépolymérise in surface during the time, which drives irreparably to the digging out of scraps.

The coating resistance 3 to the action of the rays extremist-violets is done by means of fitting additives known. The nature of the matters polymérisées can equally have his importance in this phenomenon.

In position, the bands or felt panels 1 are disposed vertically. The coating 3 assures, in such a position, the watertightness to streaming waters, rain or flows of all natures. When rain is on the other hand hunted by the wind, watertightness not more is assured with the same effectiveness, but the porous nature of the coating fills then its role while leaving to pass the water vapors present within the mass, when rain stopped.

By fibers minérales, one hears to designate, to the direction of the presents invention, wool of glass or wool of rock for example.

To the view of his destination (insulation of facades of buildings), the material according to the invention is preferably fireproofed: fireproofing realizes itself using fitting substances, normally distributed within the coating 3, for example hydroxyde of aluminum. The quantities of fire-retardant agents will be determined according to the norms to respect.

The aesthetic aspect of the problem not being to neglect, as indicated higher, the coating 3 favorably can be colored using stable pigments to the rays extremist-violets, organic and/or minerals. Of such pigments are well known man of the art and often marketed.

With regards to the quantities of coating 3 present one to the exterior surface 2 of the felt 1, one obtains from good results with understood quantities between 50 and 70 g/m², Being heard that of such values can be crossed according to the goals follow. A too thin layer would harm nevertheless to the mechanical resistance awaited, while a too important, clearly superior load to 70 g/m², Would compromise the body quality, the wished porosity not being obtained.

The invention has equally for object a procedure of manufacture of the insulating material describes above. This procedure characterizes itself by the Fact that one coating, in predetermined quantity, the exterior surface 2 of a felt of fibers minérales 1 using an aqueous or organic dispersion generator of matter polymérisée stable with respect to the rays extremist-violets, and that one dry next the thus coated surface.

This enduction carries out itself in factory, in end of the chaine of manufacture of the felt of fibers minérales, using all adequate device, roll encreur or gun for example. The used dispersion understands the mixtures generators of polymères or wished copolymères, the agent stabilizing anti-extremist-purple and, if need be, the pigments choose. The dispersion can be aqueous, organic or again aqueous organic; she is applied to the surface 2 of the felt, in quantities such as it in results, after drying, a coating presenting the weight by unity of adequate surface, preferably 50 to 70 g/m². The polymerization properly said carries out itself the most generally by drying to a temperature on the order of 150 DEG C about, by running hot air or by means of radiance infra-rouge.

Once thus prepared and dried, the felt 1 is cut in bands or panels, to the chosen dimensions. These bands or felt panels are next ready to the job.

They are used preferably as follows: on a cemented facade 4 for example, one disposes the felt 1, the surface behaving the coating 3 well being heard to the free air. The bands or felt panels are set up to the facade 4 by collage for example, or using stems, lozenges or let us suckle for example. For the realization of the ventilated facades properly say, one proceeds to the enforcement of stems of support 6 even in the concrete mass 4 of the elements of separations 7 are disposed on the stems 6 supporter the plates 5, in order to assure the regularity of the thus laid out space.

The example hereafter is given to purely indicative title: * felts wool of glass, density on the order of 30 to 36 kg/m³, Resin phénol-formaldehyde (8%), * organic dispersion to about 60% of polyvinyl acetate, polyvinyl-chlorure and stable polyethelene to the extremist-violets and fireproofed by addition of Al(OH)₃ - Density 1.40 to 1.42 -Viscosity 720 mPas,. * Enduction to the gun followed by drying to 150 DEG C during 15 minutes about. When this dispersion is in addition colored using pigments, one does not denote any color modification after drying, * produces resultant: felts in veneers or in band of 30 mm about of thickness - Revetement: 60 g/m².

Essays in real position (rain, wind, sun) showed that insulating such a material had not undergone any notable deterioration in surface after 6 months of exposition. In the rule, such a period widely suffices for the exterior constituent plate pose the ventilated facade.